



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,558	07/18/2003	Abhijeet Gole	112056-0099	4806
24267 7590 05/05/2008 CESARI AND MCKENNA, LLP 88 BLACK FALCON AVENUE BOSTON, MA 02210				
EXAMINER HUSSAIN, TAUQIR				
ART UNIT		PAPER NUMBER		
2152				
MAIL DATE		DELIVERY MODE		
05/05/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/622,558

**Applicant(s)**

GOLE ET AL.

**Examiner**

TAUQIR HUSSAIN

**Art Unit**

2152

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date 04/04/2008
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment*

1. This office action is in response to amendment /reconsideration filed on 02/04/2008, the amendment/reconsideration has been considered. Claims 14 and 22 have been amended, claims 29-38 have been newly added and therefore, claims 1-38 are pending for examination, the rejection cited as stated below.

### *Response to Arguments*

2. Applicant's arguments filed on 02/04/2008 have been fully considered but they are not deemed to be persuasive. In the remarks, applicant argued in substance that

(a) Prior art "Sutherland" does not disclose, **"a storage operating system including a cluster connection manager adapted to create, destroy...."**

As to Point (a) Examiner respectfully disagrees and refers to "Sutherland" Fig.4, element 12 a "storage coordinator" is performing the equivalent task to claimed limitation of "connection manager" in claim 1 and further nodes-14 can be interpret as peer nodes attached to said storage coordinator, and further [0063], where setting up a policy by system administrator for storage coordinator for node addition, removal and recovery policy are the equivalent to establishing a session or destroying a session upon meeting predetermined parameters of each node participating in a replication group and therefore, equivalent to the functions of connection manager in claim 1.

(b) Prior art "Sutherland and Meyer" does not teach, "creating, using a cluster connection manager executing on a storage system, an initial connection with a cluster partner".

As to point (b), Examiner respectfully disagrees and refers to "Sutherland" paragraph [0018], where storage coordinator creates a replication group which equivalently can be interpreted as cluster partner to provide and allocate predetermined amount of storage resources.

### ***Claim Objections***

3. Claims 37 and 38 are written in alternative form, claims recite "one or more peer processes" and "one or more cluster connection managers" and therefore Examiner will only choose to examine the claim interpreting as "one peer process" and "one cluster connection manager...".

### ***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1 and 28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The language of claims raises a question as to whether the claims are directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a useful, concrete and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101. The claims appear to define the metes and bounds of an

invention comprised of "operating system" (software) alone without claiming associated computer hardware required for execution. Software alone, without a machine, is incapable of transforming any physical subject matter by chemical, electrical, or mechanical acts. Correction is required.

6. Newly added claims 29, 30 and 36 are rejected under 35 U.S.C 101 as being directed to non-statutory subject matter. Claims 29, 30 and 36, In the light of specification on page 20, applicant has provided that applicant intends the invention to be implemented as software embodied as a computer readable-medium having program instructions, which implies any transmission medium which can include, cable, electromagnetic waves or wireless signals carrying computer readable instructions as such claims are drawn to a form of signal and light waves. Carrier waves or signal does not fall into one of the four categories of invention and therefore, claims 29-30 and 36 are not statutory. Signal is not a series of steps or acts and thus is not a process. Signal is not a physical article or object and such is not a machine or manufacture. Signal is not a combination of substances and therefore, not a composition of matter.

7. The text of those sections of Title 35 U.S.C 102(e) and 103(a) not included in this action can be found in a prior Office Action.

8. Claim 1-2, 4 and 6-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Sutherland et al. (Pub. No.: US 2002/0114341 A1), hereinafter "Sutherland".

9. Claims 5, 13-19, 25-26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sutherland in view of Meyer et al. (Patent No.: Us 7,203,730 B1), hereinafter "Meyer".
10. Claims 20-21, are rejected under 35 U.S.C 103(a) as unpatentable over Sutherland and Meyer as applied to claims 1-19 above in view of Craddock et al. (Pub. No.: US 2003/0061296 A1), hereinafter "Craddock".
11. Claim 22 is rejected under 35 U.S.C 103(a) as unpatentable over Sutherland as applied to claims 1-21 and 25-28 in view of Pinto (Patent No.: US 7,099,337 B2)), hereinafter "Pinto".
12. Claims 23-24, are rejected under 35 U.S.C 103(a) as unpatentable over Sutherland and Pinto in view of Gronke (Pub. No.: US 2002/0071386 A1), hereinafter "Gronke".
13. Claim 3 is rejected under 35 U.S.C 103(a) as unpatentable over Sutherland as applied to parent claim 1 above, in view of Chu et al. (Pub. No.: US 2004/0019821 A1), hereinafter "Chu".
14. Claim 27, is rejected under 35 U.S.C 103(a) as unpatentable over Sutherland as applied the parent claim 25 above, in view of Chu et al. (Pub. No.: US 2004/0019821 A1), hereinafter "Chu".

15. Sutherland, Meyer, Craddock, Pinto, Gronke and Chu have been cited as prior arts in the last office action. The teachings that applicable are respectfully maintained and incorporated by reference as set forth in the last office action.

16. Rejections to the newly added claims 29-38 and change in grounds of rejection to claims 25-26 and claim 28 are cited as below.

17. Claims 25-26, 28, 31 and 35-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Sutherland et al. (Pub. No.: US 2002/0114341 A1), hereinafter "Sutherland".

18. As to claim 38, Sutherland discloses, one or more peer processes executing on each storage system partner (Sutherland, Fig.4, [0050], where distributing workload to various groups or nodes means peer processes executing on each storage system partner and process can be equivalent to search process);

a plurality of cluster interconnect driver executing on the storage system (Sutherland, Fig.4, [0050] since there is cluster involve in the processing therefore, it is inherent that there exists a network communication device which is combination or hardware and software being the driver); and

one or more cluster connection managers configured to detect a high bandwidth load on a first cluster connection manager and in response to detecting a high bandwidth load, utilize a second cluster connection manager to access each storage system partner (Sutherland, Fig.4, [0020], where workload is balances among various

groups and selectively assigning the nodes means storage coordinator must consider the load on each node individually).

19. As to claim 37, carry similar limitations as claim 38 above, additionally Sutherland discloses, determining the failure of the first cluster interconnect driver, utilizing the second cluster interconnect (Sutherland, Abstract, where storage coordinator may also be dynamically replicated on other storage coordinators in a cluster in case one of the coordinators should fail).

20. As to claims 31 and 36 (method and computer readable medium), Sutherland discloses, waiting for an even from a client communicating with a cluster partner to received by a cluster connection manager executing on a storage operating system (Sutherland, Abstract, where responding the query from the user means there is a waiting period when computer receives the query from user);  
Determining whether the event is a client event (Sutherland, Abstract, where query from user is a determination of client event);

In response to determining that the event is a client event, performing the event utilizing the cluster connection manager (Sutherland, Abstract, where selected nodes perform their searches and report the search results back to the storage coordinator, which organizes the results and provides them to the user).

21. As to claim 35, Sutherland discloses, monitoring the status of one or more cluster interconnect drivers utilizing the cluster connection manager (Sutherland, Abstract,



Art Unit: 2152

where storage coordinator performs/manages the task of nodes statuses by distributing workload).

22. As to claim 25, Sutherland discloses the invention substantially, including, a cluster connection manager having means to manage a set of peer-to-peer connections associated with a set of cluster connection manager clients executing on the storage system (Sutherland, Fig.4, [0040, lines 1-8], where storage coordinator 12 and cluster 13 managers various sites to promote efficient management of the storage resources).

23. As to claim 26, Sutherland discloses the invention substantially as in parent claim 25, including, wherein the set of cluster connection manager clients further comprises a failover monitor (Sutherland, [0015, lines 6-13], where laptop is a failover monitor).

24. As to claim 28, is rejected for the same rationale applied to claim 25 above.

25. Claims and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sutherland in view of Meyer et al. (Patent No.: Us 7,203,730 B1), hereinafter "Meyer".

26. As to claim 29, Sutherland discloses, the invention substantially, including, creating, using a cluster connection manager executing on a storage system, an initial connection with a cluster partner (Sutherland, Fig.4, [0018], where storage coordinator creates a replication group which equivalently can be interpret as cluster partner to provide and allocate predetermined amount of storage resources and further [0104, lines 1-3], where new node is added and based on the new addition the process initialized by creating new storage lockers);

exchanging a set of peer connection information (Sutherland, [0113, lines 1-8], where node information is passed to master replication group);

passing a set of client information to the cluster partner (Sutherland, [0113, lines 1-8], where node information is passed to master replication group which, could be cluster partner);

creating a set of appropriate communication ports (Sutherland, [0052, lines 7-16], where, nodes could be interpret as communication ports). However, Sutherland is silent on alerting the cluster partner of a ready status and alerting a set of clients that the cluster partner is in a ready state. Meyer, however discloses, alerting the cluster partner of a ready status (Meyer, Col.13, lines 17-22 and 28-30, where SCSI device manager performs the readiness status to other services which could be cluster partners); and alerting a set of clients that the cluster partner is in a ready state (Meyer, Col.13, lines 28-30, where SCSI device manager performs the readiness status let the client know of ready status).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Sutherland as applied to claim 1-2 and 4 above with the teachings of Meyer in order to perform functions including discovery, classification, and profiling of storage devices, computer systems, connection elements, and other components relating to a storage area network (SAN).

27. Claims 30 and 32-34 are rejected under 35 U.S.C 103(a) as unpatentable over Sutherland as applied to claims 1-21 and 25-28 in view of Pinto (Patent No.: US 7,099,337 B2)), hereinafter "Pinto".

28. As to claim 30, Sutherland disclose, the invention substantially as applied to claims 1, 4 and 6-12 above, including, alerting, using a cluster connection manager executing on a storage system, a set of client of an impending termination of the communication session (Sutherland, [0063], where disclose is recovery policy including thresholds for a timing of various stages of alerts to the storage coordinator/connection manager);

Sutherland however is silent on disclosing explicitly, "closing, by the clients, a set of communication ports associated with the communication session and performing an initialization of a peer-to-peer communication session procedure".

However, Pinto discloses, closing, by the clients, a set of communication ports associated with the communication session (Pinto, Col.11, lines 7-8, where switch configuration means closing offline or non-communicative ports); and

performing an initialization of a peer-to-peer communication session procedure (Pinto, Col.11, lines 3-7, where subnet 500 will be initialized).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Sutherland with the teachings of Pinto in order to provide a mechanism at a host node to implement redirection for Class Managers that do not reside on the host node in order to process incoming data messages accordingly in a switched fabric for scalable solutions (Pinto, Abstract).

29. As to claim 32 carry similar limitation as claim 30 above and therefore is rejected under for same rationale.

30. As to claim 33, Sutherland and Pinto disclose the invention substantially as in parent claim 32 above, including, wherein the set of communication ports comprise a set of virtual interface connections (Pinto, Fig.4, Col.1, lines 51-55, where queue pair can be interpret as set of virtual interface connections).

31. As to claim 34, Sutherland and Pinto disclose the invention substantially as in parent claim 32 above, including, wherein a set of clients comprises a failover monitor (Sutherland, [0035, lines 9-12, where failed storage coordinator could be interpret as cluster connection manager client failover monitor).

32. **Examiner's Note:** Examiner has cited particular columns and line numbers in the references, as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in its entirety as potentially teaching of all or part of the claimed invention, as well as the context.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tauqir Hussain whose telephone number is 571-270-1247. The examiner can normally be reached on 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on 571 272 3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/T. H. /

Examiner, Art Unit 2152

/Bunjob Jaroenchonwanit/

Supervisory Patent Examiner, Art Unit 2152